

REMARKS

Claims 1-8, 10-30, and 32-57 are pending. Claims 1 and 33 have been amended. Support for the amendments may be found, *inter alia*, in paragraph [0002]. New claims 58-62 have been added. Support for new claim 58 may be found, *inter alia*, in paragraph [0076]. Support for new claims 59 and 60 may be found, *inter alia*, in paragraph [0080]. Support for new claim 61 may be found, *inter alia*, in paragraph [00114]. Support for new claim 62 may be found, *inter alia*, in paragraph [00087]. No new matter has been added.

Allowable Subject Matter

The Examiner is sincerely thanked for indicating the allowability of claim 46.

Claim Objections

Claim 36 is objected to as being dependent upon a rejected base claim, but is said to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims as numbered are further objected to because of the absence of claim 53. Accordingly, the claims have been renumbered. The Examiner is thanked for indicating the allowability of claim 36.

Rejection of Claims 1-5, 7, 8, 33, 34, and 42 Over Imamura

Claims 1-5, 7, 8, 33, 34, and 42 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,519,401 to Imamura et al. (hereinafter "Imamura"). Applicants respectfully traverse these rejections for at least the following reasons:

Independent claims 1 and 33 have been amended to recite that the optical fiber (claim 1) and fiber structure (claim 33) are configured for fiber optic communication. As well known, millions of miles of optical fiber have been laid throughout the world to provide transcontinental fiber optic communication. In sharp contrast, Imamura discloses

a “side light extraction” type light fiber having a light *diffusive* layer 3 that *scatters* light from the side of the fiber, as shown in Fig. 2 and described in col. 1, lines 9-15 and col. 2, lines 47-65. In other words, the technology taught in Imamura is addressed to a lamp, and is incapable of fiber optic communication. Imamura does not teach, disclose, or suggest a fiber configured for fiber optic communication. Therefore, claims 1 and 33, and all claims dependent therefrom, are believed to be patentable over Imamura. Withdrawal of the rejections is respectfully requested.

Rejection of Claims 1-5, 7, 8, 33, 34, and 42 Over Tsubaki

Claims 1-35, 37, 38, 42-45, 47-52, and 54-58 (now 53-57) are rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,790,742 to Tsubaki et al. (hereinafter “Tsubaki”). Applicants respectfully traverse these rejections for at least the following reasons:

Claim 1 recites a cladding layer including a plurality of hydrophilic nano-particles proximate the surface of the core. The Office Action relies on the following line of reasoning to arrive at the above rejection:

- 1) Tsubaki discloses an optical fiber comprising a core and a first and second clad layers 2a, 2b;
- 2) Tsubaki discloses that the first clad layer 2a may comprise an acrylic resin;
- 3) An acrylic resin may be hydrophilic;
- 4) Tsubaki does not disclose that the first clad layer 2a comprises nano-particles;
- 5) Tsubaki discloses in col. 5, lines 15-19 that nano-particles in the silica aerogel “provide transparency,” etc.
- 6) Therefore, one of ordinary skill in the art would be motivated to provide nano-particles in the hydrophilic acrylic resin of the first clad layer 2a.

However, Tsubaki does not teach, disclose, or suggest importing hydrophilic nano-particles into the first clad layer 2a. To the contrary, Tsubaki specifically teaches imparting a hydrophobic property to the silica particles (col. 5, line 9), and hence teaches

away from using hydrophilic particles at all. In other words, assuming *arguendo* that statements 1) – 5) are true (which Applicants do not admit), Tsubaki might, at best, be said to suggest an optical fiber having a cladding layer comprising hydrophobic nano-particles in a hydrophilic filler. Because claim 1 calls for a cladding layer including a plurality of hydrophilic nano-particles proximate the surface of the core, claim 1, and all claims dependent therefrom, are not taught or suggested by Tsubaki. Withdrawal of the rejections is therefore respectfully requested.

Independent claims 16, 22, 26, 33, 43, 48, and 57 contain similarly patentable recitations. These claims, and all claims dependent thereupon, are likewise believed to be patentable over Tsubaki for the same reasons. Withdrawal of the rejections is respectfully requested.

Independent claims 44, 45, and 47 recite specific characteristics of the nano-particles, such as metallic oxide nano-particles or molybdenum disulfide nano-particles. The Office Action admits that Tsubaki does not disclose these features, and instead relies on the improper conclusion that Tsubaki teaches “the first cladding (inner cladding) made of hydrophilic material” to assert the obviousness of claims 44, 45, and 47. As discussed above, Tsubaki does not teach, disclose, or suggest a first cladding comprising hydrophilic nano-particles, and thus fails to teach, disclose, or suggest the recitations of independent claims 44, 45, and 47. Therefore, these claims are believed to be patentable over Tsubaki. Withdrawal of the rejections is respectfully requested.

Rejection of Claims 39 and 40 Over Tsubaki and Kanda

Claims 39 and 40 are rejected under 35 U.S.C. §103(a) as being obvious over Tsubaki in view of U.S. Patent No. 4,470,055 to Kanda et al. (hereinafter “Kanda”). As discussed above, Tsubaki does not teach, disclose, or suggest a cladding layer that includes hydrophilic nano-particles, as required by claims 39 and 40 (via claim 33). Kanda fails to cure the deficiencies of Tsubaki as noted above. Therefore, claims 39 and 40 are believed to be patentable over Tsubaki and Kanda, and withdrawal of the rejections is respectfully requested.

Rejection of Claim 41 Over Tsubaki and Minemoto

Claim 41 is rejected under 35 U.S.C. §103(a) as being obvious over Tsubaki in view of U.S. Patent No. 5,699,461 to Minemoto et al. (hereinafter "Minemoto"). As discussed above, Tsubaki does not teach, disclose, or suggest a cladding layer that includes hydrophilic nano-particles, as required by claim 41 (via claim 33). Minemoto fails to cure the deficiencies of Tsubaki. Therefore, claim 41 is believed to be patentable over Tsubaki and Minemoto, and withdrawal of the rejection is respectfully requested.

CONCLUSION

Having responded to all objections and rejections, it is respectfully submitted that the application is in condition for allowance and Notice to that effect is solicited. Should the Examiner determine that any further action is necessary to place this application into better form for allowance, the Examiner is encouraged to telephone the undersigned representative at the number listed below. No further fees are believed due. However, if there are any fees due, please charge the same to our Deposit Account No. 50-0653 and reference the attorney docket number above.

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Respectfully submitted,
By: Paul F. McQuade
Paul F. McQuade
Registration No. 31,542

Greenberg Traurig, LLP
1750 Tysons Blvd, 12th Floor
McLean, Virginia 22102
703-749-1300